

Indiana Department of Environmental Management

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Frank O'Bannon Governor

Lori F. Kaplan
Commissioner

July 29, 2003

100 North Senate Avenue P. O. Box 6015 Indianapolis, Indiana 46206-6015 (317) 232-8603 (800) 451-6027 www.IN.gov/idem

TO: Interested Parties / Applicant

RE: Raybestos Products Company

FROM: Paul Dubenetzky

Chief, Permits Branch Office of Air Quality

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-17-3-4 and 326 IAC 2, this permit modification is effective immediately, unless a petition for stay of effectiveness is filed and granted, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3-7 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, ISTA Building, 150 W. Market Street, Suite 618, Indianapolis, IN 46204, **within (18) eighteen days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- the date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for consideration at any hearing; and
- identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

(over)

FNTVPMOD.wpd 7/24/03

Pursuant to 326 IAC 2-7-18(d), any person may petition the U.S. EPA to object to the issuance of a Title V operating permit or modification within sixty (60) days of the end of the forty-five (45) day EPA review period. Such an objection must be based only on issues that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates that it was impractible to raise such issues, or if the grounds for such objection arose after the comment period.

To petition the U.S. EPA to object to the issuance of a Title V operating permit, contact:

U.S. Environmental Protection Agency 401 M Street Washington, D.C. 20406

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosure FNTVPMOD..wpd 8/21/02



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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July 29, 2003

Brian Saunders
Raybestos Products Company
1204 Darlington Avenue
Crawfordsville, IN 47933

Re: 107-17443-00007

Fourth Significant Permit Modification

to:

Part 70 permit No.: T107-6836-00007

Dear Mr. Saunders:

Raybestos Products Company was issued Part 70 operating permit T107-6836-00007 on April 14, 1999 for operation of a stationary automotive parts manufacturing plant. A letter requesting changes to this permit was received on April 4, 2003. Pursuant to the provisions of 326 IAC 2-7-12 a significant permit modification to this permit is hereby approved as described in the attached Technical Support Document.

All other conditions of the permit shall remain unchanged and in effect.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter please contact Alic Bent, c/o OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call (973) 575-2555, ext. 3206 or dial (800) 451-6027, press 0 and ask for extension 3-6878.

Sincerely,

Original signed by Paul Dubenetzky Paul Dubenetzky, Chief Permits Branch Office of Air Quality

Attachments AB/EVP

cc: File - Montgomery County

Air Compliance Section Inspector - Eric Courtright

Compliance Data Section - Karen Nowak

Technical Support and Modeling - Michele Boner

Administrative and Development

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Lori F. Kaplan Commissioner 100 North Senate Avenue P. O. Box 6015 Indianapolis, Indiana 46206-6015 (317) 232-8603 (800) 451-6027 www.IN.gov/idem

PART 70 OPERATING PERMIT OFFICE OF AIR MANAGEMENT

Raybestos Products Company 1204 Darlington Avenue Crawfordsville, Indiana 47933

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 and 326 IAC 2-1-3.2 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T107-6836-00007				
Issued by: Janet G. McCabe, Assistant Commissioner Office of Air Management	Issuance Date: April 14, 1999			
First Administrative Amendment 107-11435-00007	Issuance Date: July 28, 1999			
First Significant Permit Modification 107-12810-00007	Issuance Date: January 23, 2000			
Second Significant Permit Modification 107-14857-00007	Issuance Date: December 4, 2001			
First Reopening No.: R 107-13431-00007	Issuance Date: February 7, 2002			
Second Administrative Amendment 107-16817-00007	Issuance Date: January 7, 2003			
Third Significant Permit Modification 107-16919-00007	Issuance Date: March 10, 2003			
Third Administrative Amendment 107-17259-00007	Issuance Date: May 1, 2003			
Fourth Significant Permit Modification 107-17443-00007	Pages Revised: 1, 2, 4, 31, 33, 34, 34a, 38 and 46			
Issued by:Original signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: July 29, 2003			

Raybestos Products Company Fourth Significant Permit Modification 107-17443-00007 Revised by: AB/EVP

Crawfordsville, Indiana Permit Reviewer: Cathie Moore

> (1) One (1) steel blanking and surface finishing operation, installed in 1980, identified as P001, with a maximum capacity of 7,714 pounds steel rings per hour and 9,641 pounds steel scrap per hour, using one (1) cyclone as control, exhausting to one (1) stack (10263), consisting of the following equipment:

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OP No. T107-6836-00007

- (A) Two (2) belt sanders.
- One (1) # 13613 Sunstrand 4-Head Abrasive Belt Surface Grinder, using a wet scrubber (2) for particulate matter control, exhausting to one (1) stack S-4;
- (3) Two (2) sodium nitrite salt baths, one installed in 1967 and the other to be installed in 1998, identified as P003a and P003b, with a maximum capacity of 527 (P003a) and 3500 (P003b) pounds heat treated steel rings per hour, exhausting to one (1) stack (10200).
- (4) One (1) metal grinding and grooving operation, installed in 1952, identified as P004, with a maximum capacity of 5,010 pounds ground and grooved wafers per hour, using baghouse(s) as control, consisting of the following equipment:
- (A) One (1) edge grinder; (B) Sixteen (16) groovers; (C) Three (3) grit blasters; (D) Ten (10) grinders; (E) Four (4) sanders; (F) One (1) packermatic; (G) Two (2) deburr machines; (H) One (1) wire brush; (I) One (1) brush unit; (J) One (1) demag unit; (K) One (1) milling machine;
 - (M) Three (3) grinders;

Other miscellaneous equipment;

(L)

- (N) One (1) timesaver;
- (O) Three (3) sanders;
- (P) Four (4) lathes;
- (Q) Five (5) groovers;
- (R) One (1) covel;

Raybestos Products Company Fourth Significant Permit Modification 107-17443-00007 Revised by: AB/EVP

Crawfordsville, Indiana Permit Reviewer: Cathie Moore

> (S) Three (3) drill presses;

- (T) Two (2) slotting machines;
- (U) One (1) grit blaster;
- (V) One (1) blanchard;
- (W) One (1) boring mill;
- (X) One (1) wafer grinder; and
- (Y) Other miscellaneous equipment.
- (5) One (1) metal etch lines operation, identified as P007, with a maximum capacity of 3,723 pounds etched steel per hour, using two (2) acid gas scrubbers as control, consisting of the following equipment:
 - (A) One (1) etcher, installed in 1986, with an acid gas scrubber as control, exhausting to one (1) stack (13304);
 - (B) One (1) etcher, installed in 1986, with an acid gas scrubber as control, exhausting to one (1) stack (13305); and
 - (C) One (1) lime slaking collection, installed in 1983, identified as P015, with one (1) baghouse as control, exhausting to one (1) stack (13203).

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- (6) One (1) general cleaning with solvents operation, installed in 1952, identified as P008, exhausting through roof vents, exits, and entrances, including the following equipments:
 - (A) One (1) cold solvent cleaning tank (CSC-1), installed prior to 1974;
 - (B) One (1) cold solvent cleaning tank (CSC-2), installed in 1984;
 - (C) One (1) cold solvent cleaning tank (CSC-3), installed in 1984;
 - (D) One (1) cold solvent cleaning tank (CSC-4), installed in 1984;
 - (E) One (1) cold solvent cleaning tank (CSC-5), installed in 1984;
 - (F) One (1) cold solvent cleaning tank (CSC-6), installed in 1988; and
 - (G) One (1) cold solvent cleaning tank (CSC-7), installed in 1988.
- (7) One (1) bonding/flattening process, installed in 1984, identified as P009, with a maximum capacity of 9,560 pounds bonded/flattened products per hour, consisting of the following equipment:
 - (A) Two (2) electric induction bonding machines, identified as 13073 and 13088, both exhausting to one (1) stack (13318);
 - (B) Two (2) bonders, identified as 13071 and 13072, both exhausting to one (1) stack (13320);

Raybestos Products Company Crawfordsville, Indiana Permit Reviewer: Cathie Moore

(C)

stack (13315);

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Two (2) bonders, identified as 13075 and 13076, both exhausting to one (1)

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- (D) One (1) heavy-duty bonder, identified as 13085, exhausting to one (1) stack (13316);
- (E) One (1) bonder, identified as 13074, exhausting to one (1) stack (13074); and
- (F) One (1) heavy-duty induction bonder, identified as 13067, exhausting to one (1) stack (13323).

SECTION D.1

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OP No. T107-6836-00007

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

- (1) One (1) steel blanking and surface finishing operation, installed in 1980, identified as P001, with a maximum capacity of 7,714 pounds steel rings per hour and 9,641 pounds steel scrap per hour, using one (1) cyclone as control, exhausting to one (1) stack (10263), consisting of the following equipment:
 - (A) Two (2) belt sanders.
- One (1) # 13613 Sunstrand 4-Head Abrasive Belt Surface Grinder, using a wet scrubber for particulate matter control, exhausting to one (1) stack S-4;
- Two (2) sodium nitrite salt baths, one installed in 1967 and the other to be installed in 1998, identified as P003a and P003b, with a maximum capacity of 527 (P003a) and 3500 (P003b) pounds heat treated steel rings per hour, exhausting to one (1) stack (10200).
- (4) One (1) metal grinding and grooving operation, installed in 1952, identified as P004, with a maximum capacity of 5,010 pounds ground and grooved wafers per hour, using baghouse(s) as control, consisting of the following equipment:
 - (A) One (1) edge grinder;
 - (B) Sixteen (16) groovers;
 - (C) Three (3) grit blasters;
 - (D) Ten (10) grinders;
 - (E) Four (4) sanders;
 - (F) One (1) packermatic;
 - (G) Two (2) deburr machines;
 - (H) One (1) wire brush;
 - (I) One (1) brush unit;
 - (J) One (1) demag unit;
 - (K) One (1) milling machine;
 - (L) Other miscellaneous equipment;
 - (M) Three (3) grinders;
 - (N) One (1) timesaver;
 - (O) Three (3) sanders;
 - (P) Four (4) lathes:
 - (Q) Five (5) groovers;
 - (R) One (1) covel;
 - (S) Three (3) drill presses;
 - (T) Two (2) slotting machines;
 - (U) One (1) grit blaster;
 - (V) One (1) blanchard;
 - (W) One (1) boring mill;
 - (X) One (1) wafer grinder; and
 - (Y) Other miscellaneous equipment.
- One (1) metal etch lines operation, identified as P007, with a maximum capacity of 3,723 pounds etched steel per hour, using two (2) acid gas scrubbers as control, consisting of the following equipment:
 - (A) One (1) etcher, installed in 1986, with an acid gas scrubber as control, exhausting to one (1) stack (13304);
 - (B) One (1) etcher, installed in 1986, with an acid gas scrubber as control, exhausting to one (1) stack (13305); and
 - (C) One (1) lime slaking collection, installed in 1983, identified as P015, with one (1) baghouse as control, exhausting to one (1) stack (13203).

Raybestos Products Company
Crawfordsville, Indiana
Permit Reviewer: Cathie Moore
Fourth Significant Permit Modification 107
Revised by: AB/EVP

Fourth Significant Permit Modification 107-17443-00007 Page 33 of 60 Revised by: AB/EVP OP No. T107-6836-00007

- (7) One (1) bonding/flattening process, installed in 1984, identified as P009, with a maximum capacity of 8,560 pounds bonded/flattened products per hour, consisting of the following equipment:
 - (A) Two (2) electric induction bonding machines, identified as 13073 and 13088, both exhausting to one (1) stack (13318);
 - (B) Two (2) bonders, identified as 13071 and 13072, both exhausting to one (1) stack (13320);
 - (C) Two (2) bonders, identified as 13075 and 13076, both exhausting to one (1) stack (13315);
 - (D) One (1) heavy-duty bonder, identified as 13085, exhausting to one (1) stack (13316);
 - (E) One (1) bonder, identified as 13074, exhausting to one (1) stack (13074); and
 - (F) One (1) heavy-duty induction bonder, identified as 13067, exhausting to one (1) stack (13323).
- (8) One (1) powder mixing operation, installed in 1952, identified as P010, with a maximum capacity of 1,000 pounds mixed powder per hour, using baghouse(s) as control, consisting of the following equipment:
 - (A) Thirteen (13) wafer presses;
 - (B) Other miscellaneous equipment;
 - (C) Two (2) pulverizers;
 - (D) One (1) oven;
 - (E) Four (4) wafer presses;
 - (F) Other miscellaneous equipment;
 - (G) Multiple drum opening vents;
 - (H) One (1) iron shaker;
 - (I) One (1) iron blender;
 - (J) One (1) copper blender:
 - (K) One (1) dry blender;
 - (L) One (1) copper shaker;
 - (M) One (1) pulverizer; and
 - (N) One (1) pulvenzer, and
 - (N) Other miscellaneous equipment.
- (9) One (1) graphite spray operation, installed in 1952, identified as P011, with a maximum capacity of 164 sintered metal and graphitics pieces per hour, consisting of the following equipment:
 - (A) Four (4) wafer press/graphite spary booths, exhausting to one (1) stack (14100);
 - (B) Three (3) wafer press/graphite spray booths, exhausting to one (1) stack (14101);
 - (C) Two (2) wafer press/graphite spray booths, exhausting to one (1) stack (14112);
 - (D) One (1) graphite spray booth, exhausting to one (1) stack (14113); and
 - (E) Two (2) wafer press/graphite spray booths, exhausting to one (1) stack (14116).
- One (1) paper grinding and grooving operation, installed in 1989, identified as P015, with a maximum capacity of 4,278 ground and grooved wafers per hour, using baghouse(s) as control, consisting of the following equipment:
 - (A) Four (4) wafer grinders:
 - (B) Three (3) grinders;
 - (C) One (1) groover;
 - (D) One (1) brush unit;
 - (E) One (1) auto control;
 - (F) One (1) conveyor;
 - (G) Other miscellaneous equipment;
 - (H) One (1) boring machine;
 - (I) Seven(7) wafer grinders;
 - (J) Five (5) bore and turn;
 - (K) One (1) grinder;
 - (L) Other miscellaneous equipment;

Raybestos Products Company Crawfordsville, Indiana Permit Reviewer: Cathie Moore

Fourth Significant Permit Modification 107-17443-00007 Revised by: AB/EVP

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- (M) Multiple inspection tables;
- (N) One (1) parts sorter;
- (O) Two (2) grinders;
- (P) Three (3) brush units;
- (Q) Three (3) packermatics;
- (R) Three (3) press in groovers (PIG);
- (S) Two (2) chamfer machines;
- (T) Six (6) grinders;
- (U) Six (6) groovers;
- (V) One (1) oil coater;
- (W) One (1) transfer line;
- (X) One (1) sander;
- (Y) One (1) auto control;
- (Z) Other miscellaneous equipment; and
- (AA) One (1) groover, identified as P018, using a baghouse as control, exhausting to one (1) stack (14015);
- One (1) paper blanking operation, installed in 1989, identified as P018, with a maximum capacity of 420 pounds of stamped paper per hour and 1,052 pounds of paper scrap per hour, using baghouse(s) as control, consisting of the following equipment:
 - (A) One (1) blank press;
 - (B) Other miscellaneous equipment;
 - (C) Eight (8) blank presses;
 - (D) Two (2) feeders;
 - (E) Scales;
 - (F) One (1) air press;
 - (G) One (1) baler; and
 - (H) Other miscellaneous equipment.
- One (1) rubber making operation, installed in 1979, identified as P019, with a maximum capacity of 200 pounds of rubber friction material per hour, using baghouse(s) as control, consisting of the following equipment:
 - (A) One (1) banbury mixer.

(Insignificant Activity) Paper making operation including two pulp mixers, associated caustic, alum and wastewater tanks, and one steam heated paper rolling and drying process.

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2:

- (a) The PM from the steel blanking and surface finishing operation shall not exceed the 17.32 pounds per hour;
- (b) The PM from the # 13613 Sunstrand 4-Head Abrasive Belt Surface Grinder shall not exceed 0.47 pounds per hour;
- (c) The PM from the sodium nitrite salt bath shall not exceed 1.67 (P003a) and 5.96 (P003b) pounds per hour;
- (d) The PM from the metal grinding and grooving operation shall not exceed 7.58 pounds per hour;
- (e) The PM from the metal etch lines operation shall not exceed 6.21 pounds per hour;

Raybestos Products Company Crawfordsville, Indiana Permit Reviewer: Cathie Moore

Fourth Significant Permit Modification 107-17443-00007 Revised by: AB/EVP

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- (f) The PM from the bonding/flattening process shall not exceed 11.70 pounds per hour;
- (g) The PM from the powder mixing operation shall not exceed 2.57 pounds per hour;
- (h) The PM from the graphite spray shall not exceed 0.07 pounds per hour;
- (i) The PM from the paper grinding and grooving operation shall not exceed 6.82 pounds per hour;
- (j) The PM from the paper blanking operation shall not exceed 3.33 pounds per hour; and
- (k) The PM from the rubber making operation shall not exceed 0.87 pounds per hour.

FACILITY OPERATION CONDITIONS

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OP No. T107-6836-00007

SECTION D.2

Facility Description [326 IAC 2-7-5(15)]

- One (1) general cleaning with solvents operation, installed in 1952, identified as P008, exhausting through roof vents, exits, and entrances, including the following equipments:
 - (A) One (1) cold solvent cleaning tank (CSC-1), installed prior to 1974;
 - (B) One (1) cold solvent cleaning tank (CSC-2), installed in 1984;
 - (C) One (1) cold solvent cleaning tank (CSC-3), installed in 1984;
 - (D) One (1) cold solvent cleaning tank (CSC-4), installed in 1984;
 - (E) One (1) cold solvent cleaning tank (CSC-5), installed in 1984;
 - (F) One (1) cold solvent cleaning tank (CSC-6), installed in 1988; and
 - (G) One (1) cold solvent cleaning tank (CSC-7), installed in 1988.

Emission Limitations and Standards [326 IAC 2-7-5(1)] (Cold Cleaning Degreaser Operations)

D.2.1 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), for cold cleaning operations constructed after January 1, 1980 (Cleaning Tanks CSC-2 through CSC-7), the Permittee shall:

- (a) Equip the cleaner with a cover;
- (b) Equip the cleaner with a facility for draining cleaned parts;
- (c) Close the degreaser cover whenever parts are not being handled in the cleaner;
- (d) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
- (e) Provide a permanent, conspicuous label summarizing the operation requirements;
- (f) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

Raybestos Products Company Crawfordsville, Indiana Permit Reviewer: Cathie Moore

SECTION D.3

Fourth Significant Permit Modification 107-17443-00007 Revised by: AB/EVP

FACILITY OPERATION CONDITIONS

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OP No. T107-6836-00007

Facility Description [326 IAC 2-7-5(15)]

- One (1) adhesive rollcoating operation, identified as P012, with a maximum capacity of 40,000 steel discs per hour, consisting of the following equipment:
 - (A) One (1) HD rollercoater and oven, installed prior to 1974;
 - (B) One (1) HD dual rollercoater and oven, installed prior to 1974;
 - (C) One (1) AT rollercoater and oven, installed in 1976, using a natural gas fired regenerative thermal oxidizer as control;
 - (D) One (1) AT dual rollercoater and oven, installed in 1976, using a natural gas fired regenerative thermal oxidizer as control;
 - (E) One (1) Rayflex rollcoater, installed in 1974, identified as P004;
 - (F) One (1) sample department rollcoater, installed in 1995;
 - (G) One (1) rollcoating adhesive application system, identified as an addition to P012, with maximum coating rate of 18,000 steel parts per hour, equipped with a natural gas fired regenerative thermal oxidizer for VOC and HAP control, with maximum heat input capacity no greater than 8 million British thermal units per hour;
 - (H) One (1) natural gas fired cure oven, rated at 2.5 million British thermal units per hour;
 - (I) One (1) Mini coater for black resin, constructed prior to 1974;
 - (J) One (1) Union Tool rollcoater, constructed prior to 1974;
- (13) One (1) adhesive/saturant formulation and mixing operation, installed in 1988, identified as P017, with a maximum capacity of 2,000 phenolic adhesives gallons per hour, consisting of the following equipment:
 - (A) One (1) adhesive process kettle, exhausting to one (1) stack (16201);
 - (B) One (1) adhesive process kettle, exhausting to one (1) stack (16202);
 - (C) One (1) adhesive process kettle, exhausting to one (1) stack (16203);
 - (D) One (1) adhesive process kettle, exhausting to one (1) stack (16204);
 - (E) One (1) adhesive process kettle, exhausting to one (1) stack (16205);
 - (F) One (1) adhesive process kettle, exhausting to one (1) stack (16206);
 - (G) One (1) adhesive process kettle, exhausting to one (1) stack (16207);
 - (H) One (1) storage tank, identified as MEK (near rollcoaters), with a maximum capacity of 1,000 gallons of MEK;
 - (I) One (1) storage tank, identified as Ethanol (near rollcoaters), with a maximum capacity of 8,000 gallons of ethanol;
 - (J) One (1) bulk storage tank T-1, containing ethanol, with maximum storage capacity of 12,000 gallons, exhausting to one (1) stack (16159);
 - (K) One (1) bulk storage tank T-2, containing resin, with maximum storage capacity of 13,000 gallons, exhausting to one (1) stack (16160);
 - (L) One (1) bulk storage tank T-3, containing resin, with maximum storage capacity of 11,000 gallons, exhausting to one (1) stack (16161);
 - (M) One (1) bulk storage tank T-4, containing resin, with maximum storage capacity of 4,200 gallons, exhausting to one (1) stack (16162);
 - (N) One (1) bulk storage tank T-5, containing MEK, with maximum storage capacity of 4,500 gallons, exhausting to one (1) stack (16163);
 - (O) One (1) bulk storage tank T-7, containing resin, with maximum storage capacity of 4,500 gallons, exhausting to one (1) stack (16164);

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Significant Source Modification and Significant Permit Modification to a Part 70 Operating Permit

Source Background and Description

Source Name: Raybestos Products Company

Source Location: 1204 Darlington Ave., Crawfordsville, Indiana 47933

County: Montgomery

SIC Code: 3799

Operation Permit No.: T107-6836-00007
Operation Permit Issuance Date: April 14, 1999

Source Modification No.: SSM107-17441-00007 **Permit Modification No.:** SPM107-17443-00007

Permit Reviewer: Alic Bent/EVP

The Office of Air Quality (OAQ) has reviewed a modification application from Raybestos Products Company relating to the operation of stationary automotive parts manufacturing operation.

History

On April 4, 2003, Raybestos Products Company submitted an application to the OAQ requesting the removal of the vapor degreaser unit from Section D.2 of the Title V permit, individually listing each cold cleaning tank within emission unit P008, correcting stack identification and the addition of two (2) existing unpermitted units to their existing permit:

The requests made by Raybestos Products Company are as follows:

- (a) The removal of vapor degreaser unit (P002) from the plant and the deletion of all references in the permit to the vapor degreaser. The removal of this unit will result in a net decrease of approximately 50 tons per year actual VOC and HAP emissions.
- (b) The individual listing of each MEK/Ethanol solvent cold cleaning tank (CSC-1 through CSC-7) within emission unit P008. Emission unit P008 currently covers the emissions from miscellaneous plant-wide solvent use.
- (c) Correction of the stack identities for the P009 emission units.

Unpermitted Emission Units and Pollution Control Equipment

The source also consists of the following unpermitted facilities/units which, pursuant to 326 IAC 2-7-10.5(f)(4)(A), should have received a significant source modification:

- (a) One (1) # 13613 Sunstrand 4-Head Abrasive Belt Surface Grinder, installed in 1998, using a wet scrubber for particulate matter control, exhausting to one (1) stack S-4; and
- (b) One (1) heavy-duty bonder, identified as 13085, installed in 1984, exhausting to one (1) stack (13316).

The process weight rate of the heavy-duty bonder (13085) was included in the capacity for the bonding/flattening process (P009), therefore, the addition of the heavy-duty bonder does not increase the maximum capacity of the bonding/flattening process.

Existing Approvals

The source was issued a Part 70 Operating Permit T107-6836-00007 on April 14, 1999. The source has since received the following:

- (a) First Administrative Amendment No.: 107-11435-00007, issued on December 7, 1999;
- (b) First Significant Permit Modification No.: 107-12810-00007, issued on January 23, 2001;
- (c) First Significant Source Modification No.: 107-14594-00007, issued on November 19, 2001:
- (d) Second Significant Permit Modification No.: 107-14857-00007, issued on December 4, 2001:
- (e) First Reopening No.: 107-13431-00007, issued on February 7, 2002;
- (f) Second Administrative Amendment No.: 107-16817-00007, issued January 7, 2003;
- (g) First Minor Source Modification No.: 107-16568-00007, issued February 6, 2003; and
- (h) Third Significant Permit Modification No.: 107-16919-00007, issued March 10, 2003.

Enforcement Issue

- (a) IDEM is aware that the Sunstrand 4-Head Abrasive Belt Surface Grinder has been constructed and operated prior to receipt of the proper permit. The subject equipment is listed in this Technical Support Document under the condition entitled *Unpermitted Emission Units and Pollution Control Equipment*.
- (b) IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S-4	Sunstrand Surface Grinder	32.5	1.0	5,000	Ambient
13316	Heavy Duty Bonder (13085)	30	0.5 × 1	1,000	120

Recommendation

The staff recommends to the Commissioner that the Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on April 4, 2003.

Emission Calculations

See Appendix A: pages 1 through 2 of this document for detailed emissions calculations.

Potential To Emit Before Controls (Modification)

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

Pollutant	Potential To Emit (tons/year)
PM	39.836
PM-10	39.836
SO ₂	
VOC	
CO	
NO _x	

Justification for Modification

The Title V permit is being modified through a Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(4)(A) because potential PM/PM-10 emissions are greater than 25 tons per year. The Significant Source Modification will be incorporated into the permit through a Significant Permit Modification because new limitations and standards are required to be added to the existing Title V permit.

County Attainment Status

The source is located in Montgomery County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO_2	attainment
Ozone	attainment
СО	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone.

 Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Montgomery County has been designated as attainment or unclassifiable for ozone.
- (b) Montgomery County has been classified as attainment or unclassifiable for all the criteria pollutants. Therefore, these emissions are reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD) 326 IAC 2-2.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)		
PM	less than 100		
PM-10	less than 100		
SO ₂	less than 100		
VOC	greater than 250		
СО	less than 100		
NOx	less than 100		

- (a) This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.
- (b) These emissions are based upon the source's actual emissions data for 2000.

Potential to Emit After Controls for the Modification

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units for the modification.

	Potential to Emit (tons/year)							
Process/facility	PM	PM-10	SO ₂	VOC	СО	NO_X	Single HAP	Total HAPs
#13613 Sunstrand Surface Grinder	1.26 *	1.26 *	1		1	1		
Heavy Duty Bonder (13085)	8.21	8.21	1	-	1	1		
Total Emissions	9.47	9.47						
PSD Significant Levels	25	15	40	40	100	40	10	25

^{*} Potential to emit after control.

This modification to an existing major stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

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Federal Rule Applicability

- (a) This modification does not involve a pollutant-specific emissions unit:
 - (1) with the potential to emit before controls equal to or greater than one hundred (100) tons per year, and
 - (2) that is subject to an emission limit and has a control device that is necessary to meet that limit.

Therefore, the requirements of 40 CFR Part 64, Compliance Assurance Monitoring, are not applicable.

- (b) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable for the modification to this source.
- (c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 61, and 326 IAC 20 and 40 CFR Part 63) applicable for the modification to this source.
- (d) The degreasers are not subject to National Emissions Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 63.460, Subpart T. The degreasing operations at the source do not use any halogenated solvent cleaners.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This modification to a PSD major source is not subject to this rule. This rule applies to modifications with the potential to emit (PTE) greater than or equal to 25 and/or 15 tons of PM and/or PM-10 per year, respectively. This modification has a controlled PTE PM/PM-10 of 9.47 tons per year. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes) the particulate shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

 $E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

Facilities	Process Weight Rate (tons/hr)	PM Allowable Emissions (lb/hr)	Compliance Calculations (lb/hr)
#13613 Sunstrand Surface Grinder	0.36	0.47	0.29 (controlled)
Electric Induction * Bonding Machine (13085)	4.5	11.23	1.87 (uncontrolled)

^{*} Electric Induction Bonding Machine (13085) is one of nine units making up the bonding flattening process (P009) which has a process weight of 4.5 tons per hour.

The wet scrubber shall be in operation at all times the #13613 Sunstrand Surface Grinder is in operation, in order to comply with this limit.

326 IAC 8-3-2 (Cold Cleaner Operation)

This rule applies to new facilities after January 1, 1980, performing organic solvent degreasing operations located anywhere in the state.

- (a) Cold cleaning tank CSC-1 was installed prior to January 1, 1980 and is therefore not subject to this rule.
- (b) Cold cleaning tanks CSC-2 through CSC-7 were installed after January 1, 1980 and before July 1, 1990 and are therefore subject to 326 IAC 8-3-2. Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operation), the Permittee shall:
 - (1) equip the cleaner with a cover;
 - (2) equip the cleaner with a facility for draining cleaned parts;
 - (3) close the degreaser cover whenever parts are not being handled in the cleaner;
 - (4) drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
 - (5) provide a permanent, conspicuous label summarizing the operation requirements;
 - (6) store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

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Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

- 1. The #13613 Sunstrand Surface Grinder has applicable compliance monitoring conditions as specified below:
 - (a) Once per shift visible emissions notations of the #13613 Sunstrand Surface Grinder stack exhaust shall be performed during normal daylight operations. A trained employee will record whether emissions are normal or abnormal. For processes operated continuously "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.
 - (b) The Permittee shall record the total static pressure drop across the wet scrubber controlling the #13613 Sunstrand Surface Grinder, at least once per shift when the #13613 Sunstrand Surface Grinder is in operation. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the wet scrubber shall be maintained within the range of 3.0 to 6.0 inches of water or a range established during the latest stack test. The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of the above mentioned range for any one reading.

These monitoring conditions are necessary because the wet scrubber for the #13613 Sunstrand Surface Grinder must operate properly to ensure compliance with 326 IAC 6-3 (Process Operations).

Proposed Changes to the Part 70 Operating Permit

The following changes are made as the Second Significant Source Modification 107-17441-00007 to Part 70 Operating Permit No. T107-6836-00007 (new language shown in bold and deleted language shown with a line through it):

- (1) The following changes have been made to Section A.2.
- A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

- (1) One (1) steel blanking and surface finishing operation, installed in 1980, identified as P001, with a maximum capacity of 7,714 pounds steel rings per hour and 9,461 pounds steel scrap per hour, using one (1) cyclone as control, exhausting to one (1) stack (10263), consisting of the following equipment:
 - (A) Two (2) belt sanders.
- (2) One (1) trichloroethylene degreasing operation, identified as P002, consisting of the following equipment:
- (A) One (1) open top degreaser, installed in 1989, identified as P002A, using one (1) carbon absorber as control, exhausting to one (1) stack (10276);
- (B) One (1) trichloroethylene storage tank, installed in 1982, with a maximum capacity of 1,800 gallons; and
 - (C) One (1) open top degreaser, using one (1) carbon absorber as control.
 - (2) One (1) # 13613 Sunstrand 4-Head Abrasive Belt Surface Grinder, using a wet scrubber for particulate matter control, exhausting to one (1) stack S-4;
 - (6) One (1) general cleaning with solvents operation, installed in 1952, identified as P008, exhausting through roof vents, exits, and entrances, **including the following equipments:**
 - (A) One (1) cold solvent cleaning tank (CSC-1), installed prior to 1974;
 - (B) One (1) cold solvent cleaning tank (CSC-2), installed in 1984;
 - (C) One (1) cold solvent cleaning tank (CSC-3), installed in 1984;
 - (D) One (1) cold solvent cleaning tank (CSC-4), installed in 1984;
 - (E) One (1) cold solvent cleaning tank (CSC-5), installed in 1984;
 - (F) One (1) cold solvent cleaning tank (CSC-6), installed in 1988; and
 - (G) One (1) cold solvent cleaning tank (CSC-7), installed in 1988.
 - (7) One (1) bonding/flattening process, installed in 1984, identified as P009, with a maximum capacity of 9,560 pounds bonded/flattened products per hour, consisting of the following equipment:
 - (A) Two (2) One (1) electric induction bonding machines, identified as 13073 and 13088, both exhausting to one (1) stack (13318);

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- (B) Two (2) bonders, **identified as 13071 and 13072**, **both** exhausting to one (1) stack (13072 **13320**);
- (C) Two (2) bonders, **identified as 13075 and 13076**, **both** exhausting to one (1) stack (13073 **13315**);
- (D) One (1) bonder, exhausting to one (1) stack (13075);
- (D) One (1) heavy-duty bonder, identified as 13085, exhausting to one (1) stack (13316);
- (E) One (1) bonder, **identified as 13074**, exhausting to one (1) stack (130764); and
- (F) One (1) **heavy-duty** induction bonder, identified as P015 **13067**, using one (1) baghouse as control, exhausting to one (1) stack (13203 **13323**).
- (2) The #13613 Sunstrand 4-Head Abrasive Belt Surface Grinder and the heavy duty bonder (13085) are being added to the facility description in Sections D.1(2) and D.1(7)(D), respectively. The stack identities for all the bonders in D.1(7) have been corrected as follows:

Facility Description [326 IAC 2-7-5(15)]

- (2) One (1) # 13613 Sunstrand 4-Head Abrasive Belt Surface Grinder, using a wet scrubber for particulate matter control, exhausting to one (1) stack S-4;
- (7) One (1) bonding/flattening process, installed in 1984, identified as P009, with a maximum capacity of 9,560 pounds bonded/flattened products per hour, consisting of the following equipment:
 - (A) Two (2) One (1) electric induction bonding machines, identified as 13073 and 13088, both exhausting to one (1) stack (13318);
 - (B) Two (2) bonders, **identified as 13071 and 13072**, **both** exhausting to one (1) stack (13072 **13320**):
 - (C) Two (2) bonders, **identified as 13075 and 13076**, **both** exhausting to one (1) stack (13073 **13315**);
 - (D) One (1) bonder, exhausting to one (1) stack (13075);
 - (D) One (1) heavy-duty bonder, identified as 13085, exhausting to one (1) stack (13316);
 - (E) One (1) bonder, **identified as 13074**, exhausting to one (1) stack (130764); and
 - (F) One (1) **heavy-duty** induction bonder, identified as P015 **13067**, using one (1) baghouse as control, exhausting to one (1) stack (13203 **13323**).

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2:

- (a) The PM from the steel blanking and surface finishing operation shall not exceed the 17.32 pounds per hour;
- (b) The PM from the # 13613 Sunstrand 4-Head Abrasive Belt Surface Grinder shall not exceed 0.47 pounds per hour;

- (bc) The PM from the sodium nitrite salt bath shall not exceed 1.67 (P003a) and 5.96 (P003b) pounds per hour;
- (ed) The PM from the metal grinding and grooving operation shall not exceed 7.58 pounds per hour;
- (de) The PM from the metal etch lines operation shall not exceed 6.21 pounds per hour;
- (ef) The PM from the bonding/flattening process shall not exceed 11.70 pounds per hour;
- (fg) The PM from the powder mixing operation shall not exceed 2.57 pounds per hour;
- (gh) The PM from the graphite spray shall not exceed 0.07 pounds per hour;
- (hi) The PM from the paper grinding and grooving operation shall not exceed 6.82 pounds per hour;
- (ij) The PM from the paper blanking operation shall not exceed 3.33 pounds per hour; and
- (jk) The PM from the rubber making operation shall not exceed 0.87 pounds per hour.
- (3) The degreasing operations (P002) in Section D.2 and all references within the permit to the degreasers listed under this section has been deleted.

Facility Description [326 IAC 2-7-5(15)]

(2) One (1) trichloroethylene degreasing operation, identified as P002, consisting of the following equipment:

(A) One (1) open top degreaser, installed in 1989, identified as P002A, using one (1) carbon absorber as control, exhausting to one (1) stack (10276);

(B) One (1) trichloroethylene storage tank, installed in 1982, with a maximum capacity of 1,800 gallons; and

(C) One (1) open top degreaser, using one (1) carbon absorber as control.

(4) The facility description in Section D.3 (6) (general cleaning with solvents operation) has been moved to Section D.2 and revised to individually list all the MEK/Ethanol cold solvent cleaning tanks as follows:

Facility Description [326 IAC 2-7-5(15)]

- (6) One (1) general cleaning with solvents operation, installed in 1952, identified as P008, exhausting through roof vents, exits, and entrances, **including the following equipments:**
 - (A) One (1) cold solvent cleaning tank (CSC-1), installed prior to 1974;
 - (B) One (1) cold solvent cleaning tank (CSC-2), installed in 1984;
 - (C) One (1) cold solvent cleaning tank (CSC-3), installed in 1984;
 - (D) One (1) cold solvent cleaning tank (CSC-4), installed in 1984;
 - (E) One (1) cold solvent cleaning tank (CSC-5), installed in 1984;
 - (F) One (1) cold solvent cleaning tank (CSC-6), installed in 1988; and
 - (G) One (1) cold solvent cleaning tank (CSC-7), installed in 1988.

(5) The following requirements are being added to the permit for the cold solvent cleaning tanks.

Emission Limitations and Standards [326 IAC 2-7-5(1)] (Cold Cleaning Degreaser Operations)

D.2.1 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), for cold cleaning operations constructed after January 1, 1980 (Cleaning Tanks CSC-2 through CSC-7), the Permittee shall:

- (a) Equip the cleaner with a cover;
- (b) Equip the cleaner with a facility for draining cleaned parts;
- (c) Close the degreaser cover whenever parts are not being handled in the cleaner;
- (d) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
- (e) Provide a permanent, conspicuous label summarizing the operation requirements;
- (f) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

Conclusion

This modification shall be subject to the conditions of the attached Part 70 Significant Source Modification No. 107-17441-00007 and Significant Permit Modification No. 107-17443-00007.

Appendix A: Emissions Calculations Surface Grinder

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Company Name: Raybestos Products Company

Address City IN Zip: 1204 Darlington Ave., Crawfordsville, IN 47933

PIt ID: SPM 107-17443-00007

Reviewer: Alic Bent/EVP Date: April 24, 2003

	Max.		Uncontrolled	Uncontrolled		Controlled	Controlled
	Production		Potential	Potential	Control	Potential	Potential
Emission Unit	Rate	Emission Factor	Emissions	Emissions	Efficiency	Emissions	Emissions
Description	(lb/hr)	(lb PM/lb Parts Proc.)	(lb/hr)	(ton/yr)	(%)	(lb/hr)	(ton/yr)
#13613 Sunstrand 4-Head							
Abrasive Belt Surface Grinder	720	0.010000	7.20	31.536	96.00%	0.288	1.26144
Total Emissions			7.20	31.536		0.288	1.26144

METHODOLOGY

Potential Emissions (tons/yr) = Max. Production Rate (lb/hr) * Emission Factor (lb PM/lb Parts Processed) * 8760 hrs/yr * 1 ton/2000 lbs Emission Factor Calculation:

Given that 1/100th of the metal surface is removed, 0.01 pounds of metal are removed from each pound of metal processed.

Appendix A: Emissions Calculations Heavy Duty Bonder

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Company Name: Raybestos Products Company

Address City IN Zip: 1204 Darlington Ave., Crawfordsville, IN 47933

PIt ID: SPM 107-17443-00007

Reviewer: Alic Bent/EVP Date: April 24, 2003

	Max.		Uncontrolled	Uncontrolled
	Production		Potential	Potential
Emission Unit	Rate	Emission Factor	Emissions	Emissions
Description	(lb/hr)	(lb PM/lb Parts Proc.)	(lb/hr)	(ton/yr)
Heavy Duty Electric Induction				
Bonder (13085)	1500	0.001250	1.88	8.2125
Total Emissions			1.88	8.2125

METHODOLOGY

Potential Emissions (tons/yr) = Max. Production Rate (lb/hr) * Emission Factor (lb PM/lb Parts Processed) * 8760 hrs/yr * 1 ton/2000 lbs Emission Factor Calculation:

The emission factor is from material balance using actual process weight loss calculations.